

### **Progress for the week 8-18 to 8-24**

1-Solved the problem of the cracking chips and supplied Sonali with many working chips that can take high flow rate

2-I was planning to run the lambda phage experiment but that was postponed on the hope that we'd be able to submit the abstract to the IEEE mems conference .

3-Progress on the Abstract:

Wednesday: searched all resources for the microfabrication using AZ P4620 photoresist and using Shipley1818. Tried with Mincheol to clean the chrome mask from photoresist residual. The mask was not cleaned yet we thought it was useable.

Thursday night Friday morning: Mastered the Delta spinner and made AZP4620 wafers that are 10um thick yet the process was not correct since I couldn't find many resources explaining it. Later Jaephil helped me and added some steps that resulted in a very good yet seemingly overexposed chip.

Mincheol's negative chrome mask was ready so SU-8 2010 was to be used for the conference.

Saturday: 3 wafers of thickness 10um 15 and 20um. Exposed and developed. The small bacterial trapping pouches never developed well as if exposed as well. Repeated the process for another 3 wafers. No good results. Finally for one wafer when exposed used Hard contact instead of soft.

I anticipated that even few microns gap would let enough UV to crosslink the small features. The wafers turned out great. Measuring on the Zygo showed a distribution of thicknesses from 6.2 to 15.4. The Microchem instructions were not so

### **Plans for the week 8-25 to 9-31**

1-Run the lambda phage experiments get results by end of the week

2-make chips for lambda phage optimization and chips for Sonali

3-Give the fixture design to the machine shop

4-on the 29<sup>th</sup> have meeting with Annless. Possibility of taking the qualifier.

5-Produce a perfect wafer using Mincheol's chrome mask with 1um gap resolution.

accurate.

Wafers of different thicknesses used to make PDMS. When PDMS was ready It was used with the UV epoxy.

The UV epoxy was not as good as expected it left residual and was hard to control its exposure and never transferred the tiny features.

Sunday: Piranha treatment and recycling of useless wafers

